

Applicant Name North Valley County Water and Sewer District (NVCWSD)
Project Name North Valley County Water System Improvements

Project Abstract

The community of St. Marie, formerly known as the old Glasgow Air Force Base, is 17 miles north of Glasgow. After the base closed, the property changed hands several times and eventually reverted to Valley County. The water and sewer infrastructure is maintained by the NVCWSD.

The district has been repairing mains, services, hydrants, and valves on an as-needed basis each year, realizing that some day a major reconstruction project would be needed to replace the 1950s vintage infrastructure.

Much of the old Air Force Base has been abandoned. At this time no commercial buildings are occupied and the community has evolved into a retirement community.

The district purchases water from the Montana Aviation Research Company (MARCO), a subsidiary of Boeing. The MARCO maintains the runways; uses the facility for airliner flight testing; and operates the water treatment plant, which supplies treated Missouri River water to the MARCO and the St. Marie community. Flows to St. Marie are metered through a master meter.

The NVCWSD owns the water service up to and including the meters in the basements of the units.

The North Valley County water system has several deficiencies, as noted in the Preliminary Engineering Report (PER).

The distribution system was designed and constructed in the 1950s to accommodate an air force base. Many of the units were never occupied and the water distribution system was never tested under civilian usage and maintenance. The lines are not uniform. They range from six inches to 10 inches in diameter. Some are buried seven feet from the surface and some up to 17 feet from the surface. The mains were sized for the original air force base population of approximately 10,000, with a strong commercial economy.

The water mains are asbestos cement pipe (AC) material. The residential units are typically fed through a three-inch AC line tapped with up to four 0.75-inch copper services. There is only one shut off on the three-inch line which means up to four residents could be without water if only one 0.75-inch service requires maintenance.

When the base closed, the as-builts of the infrastructure disappeared. Therefore, the district has had difficulties maintaining the water system when main sizes and service line locations are unknown.

Isolation of the service lines has been very difficult. For instance, one housing unit may have one occupant who is gone for the winter, whereas the other occupants use water year round. The service to the idle user cannot be shut off at the curb stop since one service feeds up to four occupants. During the winter, heat tape is used for these instances, but frequently the frigid temperatures cause the idle service to break and flood the basement.

For example, a service break occurred and the curb stop could not be located easily. The break was traced by monitoring the flow into the sanitary sewer lift station. By the time it was found, the St. Marie reservoir and one MARCO reservoir were emptied.

The following summarizes the deficiencies in the system:

- Difficulty of finding both small and large water breaks – 22 breaks have occurred since 1993;
- Several hydrant and valve repairs – 18 repairs since 1993;
- Several dozen service line breaks since 1992;
- Isolation difficulty on the mains and services; and
- Increased flows to the wastewater treatment pond due to basement flooding.

All customers are metered separately. The meters are in the basements of the units with a hard wire readout on the exterior of the building. The district has had difficulties accessing the meters for maintenance and to verify that they have not been bypassed.

There is no Supervisory Control and Data Acquisition (SCADA) system available to monitor elevation in the reservoirs. Elevation of the water in the reservoirs is measured at standard temperature and pressure with a pressure gauge.

The PER summarizes the recommended improvements and considers the cost to residents of St. Marie. If all work were to be completed in one phase, the cost would be prohibitive for the community. Therefore, the project engineer is recommending the district forego the new water meters and the SCADA system at this time and focus its attention on the distribution system. Other items are addressed in the Capital Improvements Plan.